Chapter 6

Cholesterol Awareness

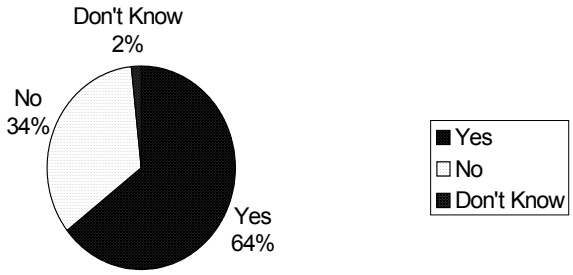
Blood cholesterol is considered high at 200 milligrams per deciliters (mg/dL) or above. Cholesterol is transported throughout the bloodstream on a carrier called a lipoprotein. One type of lipoprotein, the high-density lipoproteins (HDL), are thought to help remove cholesterol from the bloodstream, hence, this is often called the "good" cholesterol. Low-density lipoproteins (LDL) deposit cholesterol in the artery walls and a buildup can then lead to arteriosclerosis; therefore, this type is usually referred to as "bad" cholesterol. Coronary heart Disease (CHD) is the number one killer of both men and women in the U.S. Each year, more than 500,000 Americans die of heart attacks caused by CHD, and some 7 million Americans suffer from coronary heart disease (CHD). The association between high blood cholesterol and coronary heart disease (CHD) has been well documented.

Lowering the total and low-density lipoprotein cholesterol level can reduce the incidence of CHD. For example, lowering the serum cholesterol by 1 percent can result in 2 percent decrease in the risk for CHD. It is recommended by the National Cholesterol Education Program (NCEP) that all adults should check their blood cholesterol levels at least once every five years. This action would allow them to take necessary steps to lower their levels. One of the national health objectives for 2010 is to reduce the percentage of adults aged 20 years or more with total blood cholesterol levels of greater than 240 mg/dL. One strategy for achieving this objective is to increase awareness of high blood cholesterol level. Respondents of the BRFSS survey were asked whether they had ever had their cholesterol levels checked and, if so, whether they were told their cholesterol levels are high. They were also asked about the last time they had their blood cholesterol checked. The cholesterol awareness question was not asked in the 2000 survey.

Ever Had Cholesterol Checked

Approximately 64 percent (64.2%, 95% CI, 61.2%-67.2%) respondents in 1999 answered “yes” to the question “Blood cholesterol is a fatty substance found in the blood. Have you ever had your blood cholesterol checked?” Thirty-four percent-answered “no”. Only 2 percent reported that they either “do not know” or were “not sure”(Fig.30a)

Fig.30a : Respondents Who Ever Had Had Their Cholesterol Checked



Prevalence and Trends

Those respondents reporting that they ever had their blood cholesterol checked ranged from 68.8 percent in 1993-1995 to 64.2 percent in 1999 (Fig.30b).

Fig.30b: Trend in "Ever had Cholesterol Checked"

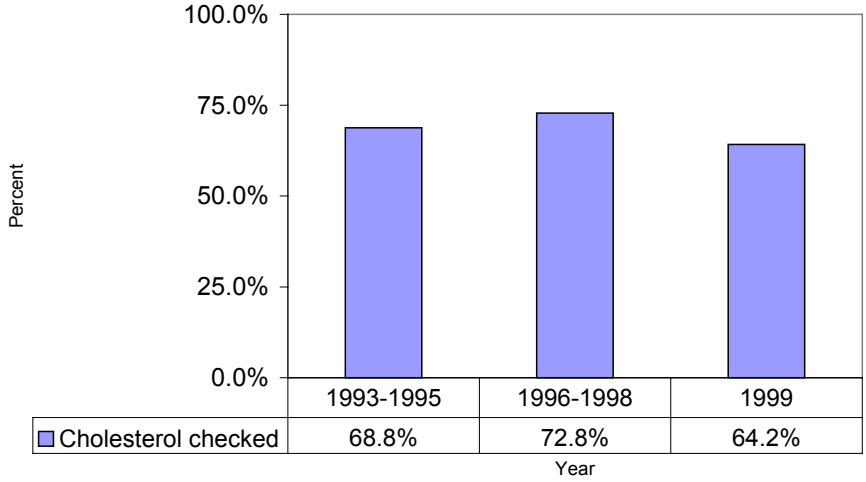
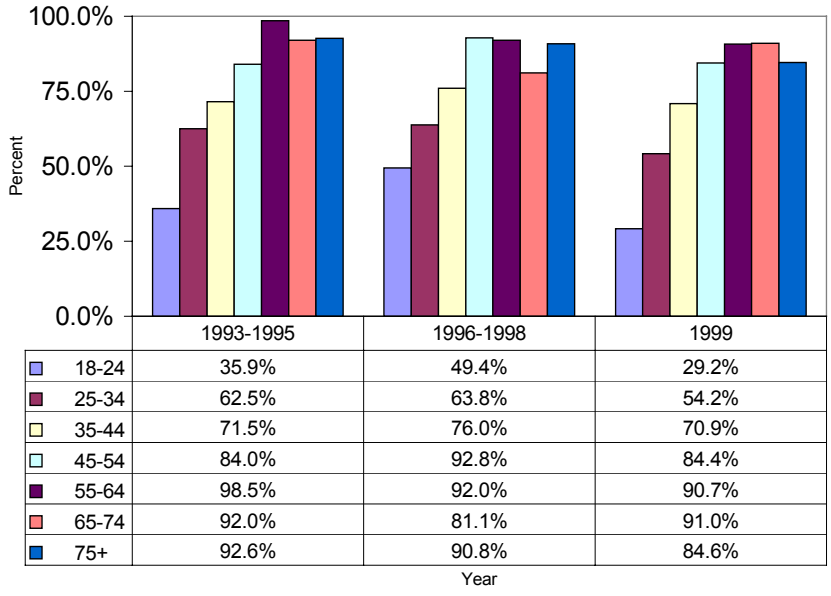


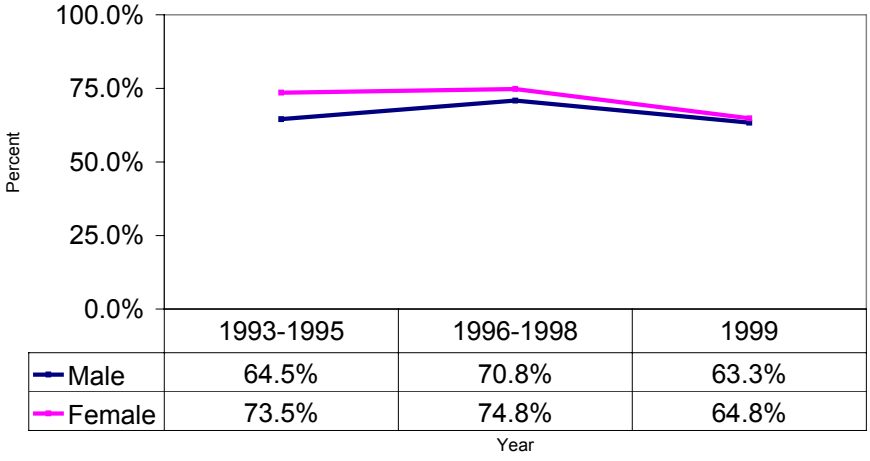
Fig.30c: Trend in "Ever Had Cholesterol Checked by Age"



As age increases, the proportion of adults who had their blood cholesterol checked increased. In 1999, 29.2 percent of adults aged 18-24 years, 54.2 percent of adults aged

25-34 years, and 70.9 percent of adults aged 35-44 years reported ever having their blood cholesterol checked. Higher rates of high cholesterol level were observed among older population and these trends are true for the time period covered by this report (Fig.30c).

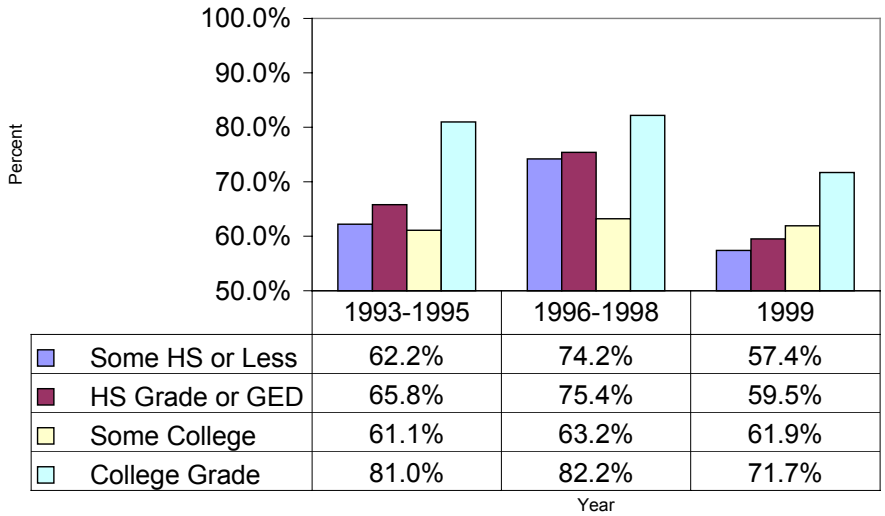
Fig.31a : "Ever Had Blood Cholesterol Checked by Gender



	1993-1995	1996-1998	1999
Male	64.5%	70.8%	63.3%
Female	73.5%	74.8%	64.8%

More Lancaster women (65%) than men (63%) had gone for their cholesterol level screening in 1999. The same was true in the 1993-1995 and 1995-1998 surveys (Fig.31a).

Fig.31b: Ever Had Blood Cholesterol Checked by Education

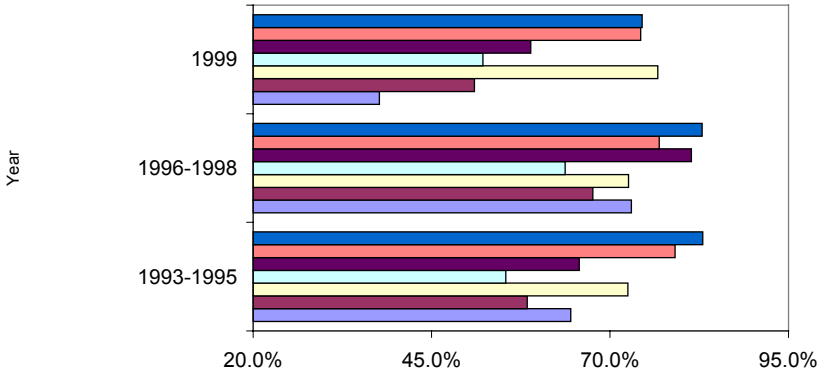


	1993-1995	1996-1998	1999
Some HS or Less	62.2%	74.2%	57.4%
HS Grade or GED	65.8%	75.4%	59.5%
Some College	61.1%	63.2%	61.9%
College Grade	81.0%	82.2%	71.7%

Respondents with higher education attainment seemed to be more concerned about detecting their cholesterol level than respondents with less education. Data analysis, regardless of year, revealed that a higher percentage of college graduates (71.7% in 1999) have ever had their blood cholesterol screened as compared to respondents of any other education level (Fig.31b).

The proportion of cholesterol screening recipients increased with higher annual household income levels. Nearly three-fourths (74.5%) of respondents with household incomes of $50,000 or more, had their blood cholesterol checked, as compared to one-third (37.7%) respondents with household income of less than $10,000 (Fig.32).

Fig.32: Ever Had Blood Cholesterol Checked by Income



	1993-1995	1996-1998	1999
$50,000+	83.0%	82.9%	74.5%
$35,000 - $50,000	79.1%	76.9%	74.3%
$25,000 - $35,000	65.7%	81.4%	58.9%
$20,000 - $25,000	55.4%	63.7%	52.2%
$15,000 - $20,000	72.5%	72.6%	76.7%
$10,000 - $15,000	58.4%	67.6%	51.0%
Less than $10,000	64.5%	73.0%	37.7%

Percent

A similar trend was evident based on the race of BRFSS respondents. More whites (65.8%) than non-whites (39.5%) went to check their blood cholesterol level in 1999 (Table.10).

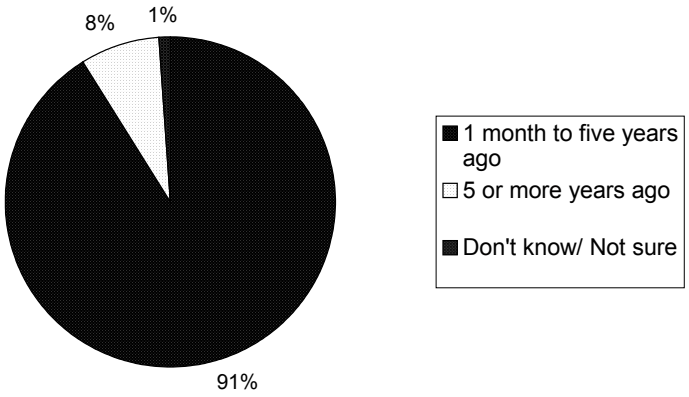
Table 10: Ever Had Blood Cholesterol Checked by Race

Years	**1993-1995**	**1996-1998**	**1999**
Race			
White	70.6%	72.9%	65.8%
Non-White	45%	73.8%	39.5%

Had Blood Cholesterol checked in past 5 years

In 1999, 9 out of 10 (90.7%, 95% CI, 88.5%-92.9%) respondents, who reported ever having their blood cholesterol checked, had their screening within the past five years (Fig.33a). Eight percent (95% CI, 6%-10.2%) had it checked 5 or more years ago, and only 1 percent (95% CI, 0.3%-1.3%) either did not know or were not sure about the when they had it checked.

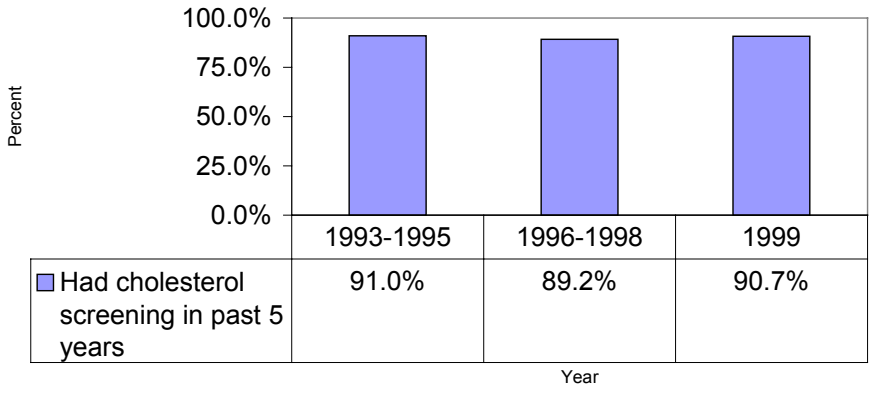
Fig.33a: Respondents Who Had Blood Chelosterol Checked in Past Five Years



Trend and prevalence

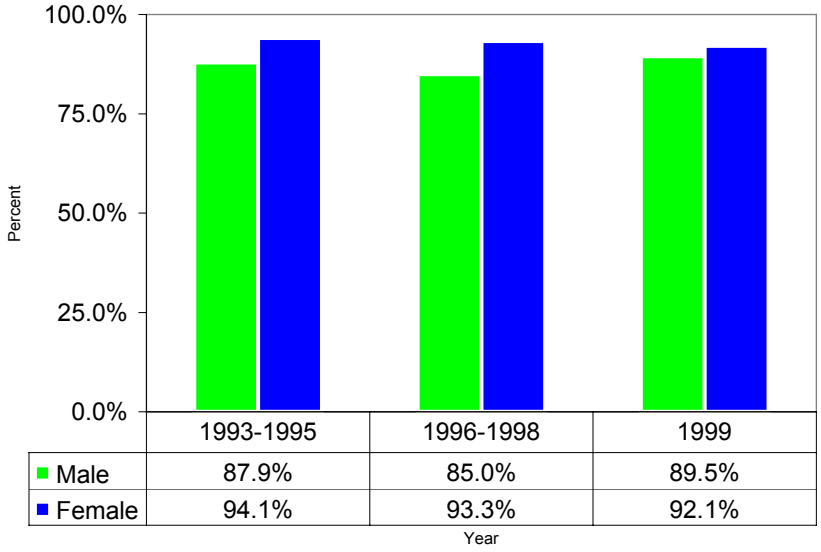
The proportion of respondents who had a cholesterol-screening test with in last 5 years remained fairly stable over the last six years (Fig.33b).

Fig.33b: Trend in "Had Cholesterol Screening in Past Five Years"



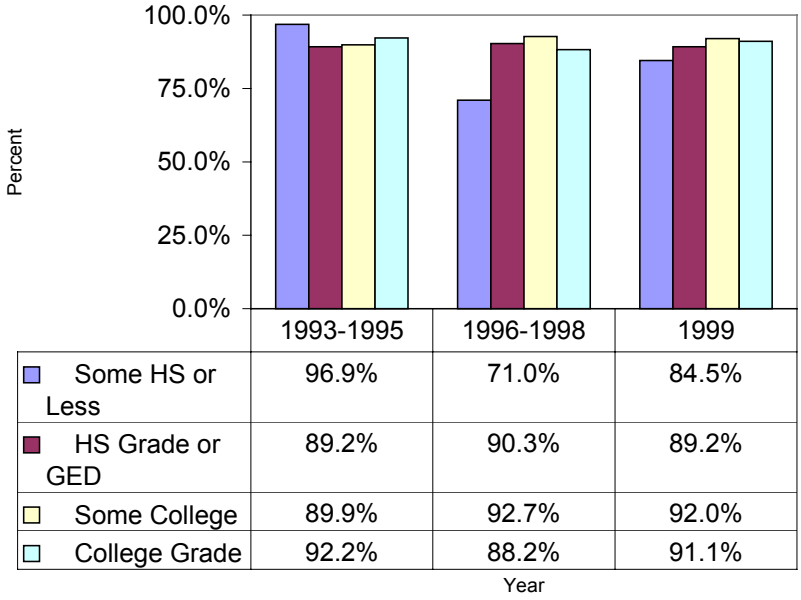
Despite high proportions for both sexes, women were more likely to have cholesterol screening within the past five years than men (Fig.34a). Ninety-two percent of women and 89.5 percent of men reported in 1999 that they had their cholesterol screening within the past five years.

Fig.34a: Had Cholesterol Screening Within Past Five Years



	1993-1995	1996-1998	1999
Male	87.9%	85.0%	89.5%
Female	94.1%	93.3%	92.1%

Fig.34b: Had Cholesterol Screening in Past Five Years by Education



	1993-1995	1996-1998	1999
Some HS or Less	96.9%	71.0%	84.5%
HS Grade or GED	89.2%	90.3%	89.2%
Some College	89.9%	92.7%	92.0%
College Grade	92.2%	88.2%	91.1%

The respondents who were less educated, were less likely to have cholesterol screening within the past five years (Fig 34b). In 1999, 91.1 percent of the respondents with college degrees reported having a blood cholesterol screening test within the 5 years preceding the survey. This rate was somewhat lower among respondents with less education (84.5% in adults with some high school or less education). However this pattern of correlation was not observed in the 1993-1995 and 1996-1998 period (Table 11).

No other demonstrable trends were observed due to differences in age, race, and household income.

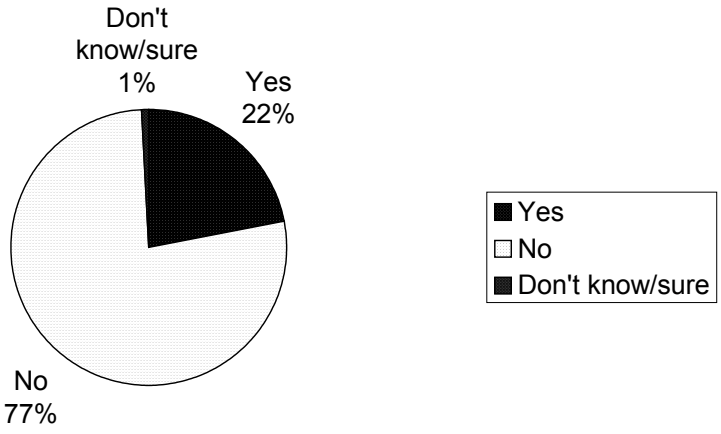
Table 11: Had Cholesterol Screening in Past 5 Years

Years	1993-1995	1996-1998	1999
Annual Household Income			
Less than $10,000	95.4%	79.3%	98.4%
* $10,000 - $15,000	98.4%	97.7%	97.6%
$15,000 - $20,000	84.0%	98.0%	89.0%
$20,000 - $25,000	96.7%	92.5%	89.4%
$25,000 - $35,000	82.4%	73.3%	93.1%
$35,000 - $50,000	92.8%	90.8%	85.1%
$50,000+	94.2%	93.7%	90.8%
Age Group			
18-24	94.4%	85.5%	95.4%
25-34	87%	87.3%	89.6%
35-44	88.5%	86%	87.4%
45-54	96.9%	89.7%	85%
55-64	85.8%	99%	97%
65-74	91.5%	97.7%	92.6%
75+	100%	84.7%	96%
Race			
White	90.7%	67.5%	90.6%
Non-White	100%	67.9%	93.6%

Blood Cholesterol High

More than one-fifth (22.1%, 95% CI, 19.1% - 25.1%) of all BRFSS respondents in 1999 reported that a doctor or other health professional told them that their blood cholesterol level was high (Fig 35a). Only 1 percent was uncertain about it.

Fig.35a: Ever Told Blood Cholesterol High



Prevalence and Trends

The magnitude of high cholesterol level among adults in Lancaster County remained almost the same for the periods covered by this report.

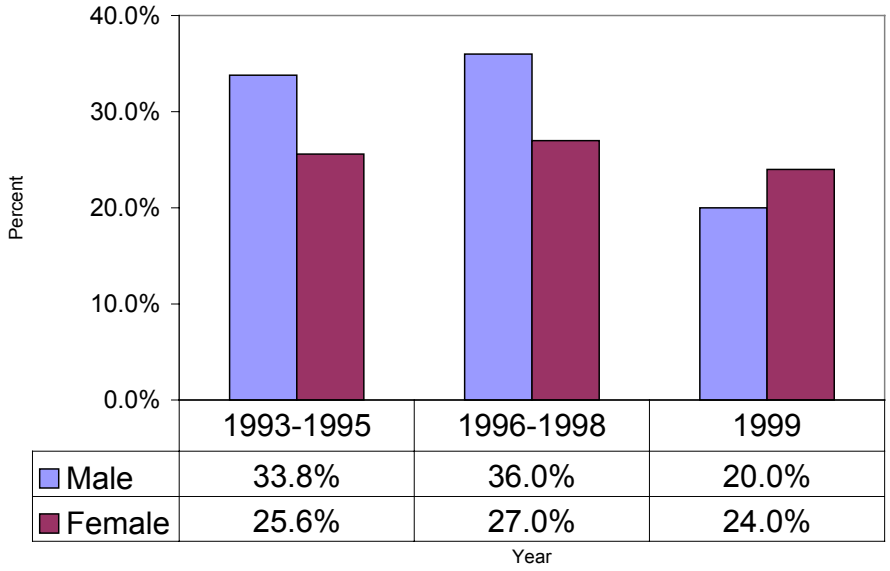
Each year, other than 1999 which showed little gender variation, a slightly higher percentage of males than females had ever been told their cholesterol level was high (Fig.35b).

Older adults aged 55 and over, comprised the largest segment of population with high blood cholesterol level (Fig 36). Only 3.5 percent of the younger adults, aged 18-24, were told their blood cholesterol level was high. In comparison, 30 percent of the adults aged 65-74 years, have been told they have high blood cholesterol levels.

College graduates had a lower prevalence of high blood cholesterol than groups with less education (Fig.37).

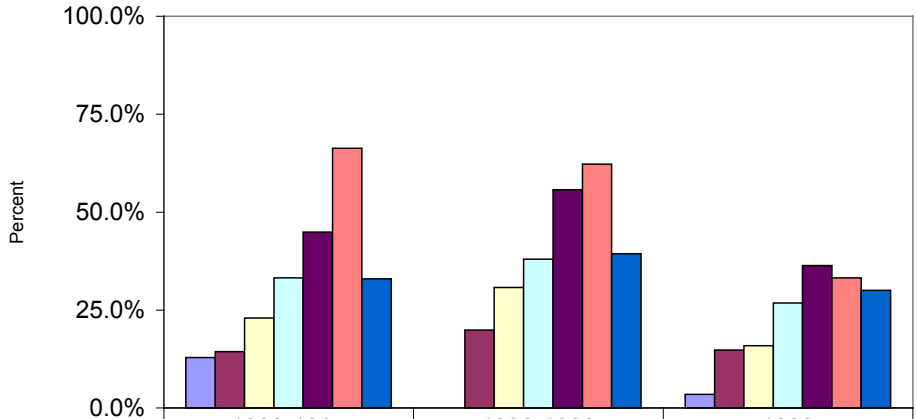
Although prevalence of high blood cholesterol level among whites has declined significantly from the previous years (29.7% in 1993-1995 versus 22.2% in 1999), they consistently continued to have the higher rates than non-whites (Fig.38). A specific pattern of high blood cholesterol level by income category of the respondents was not seen in any year surveys (Table 12).

Fig.35b: Prevalence of High Blood Cholesterol Level by Gender



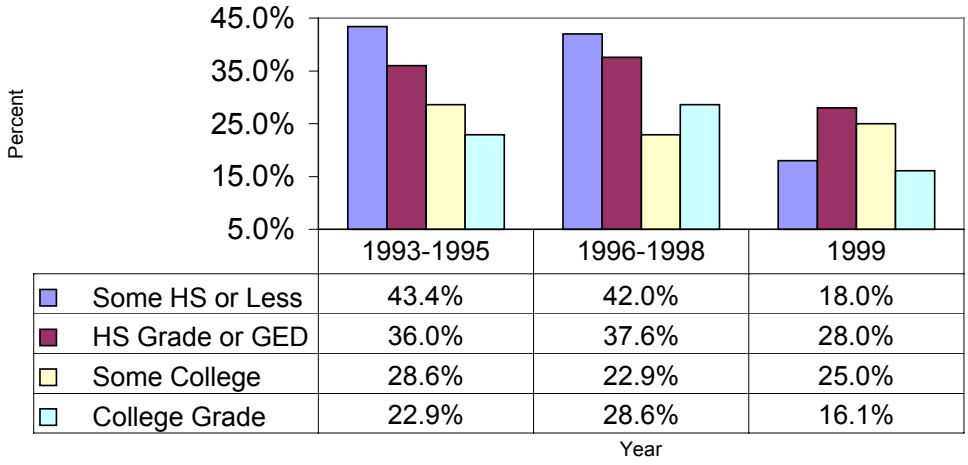
	1993-1995	1996-1998	1999
Male	33.8%	36.0%	20.0%
Female	25.6%	27.0%	24.0%

Fig.36: Trend in High Blood Cholesterol Level by Age



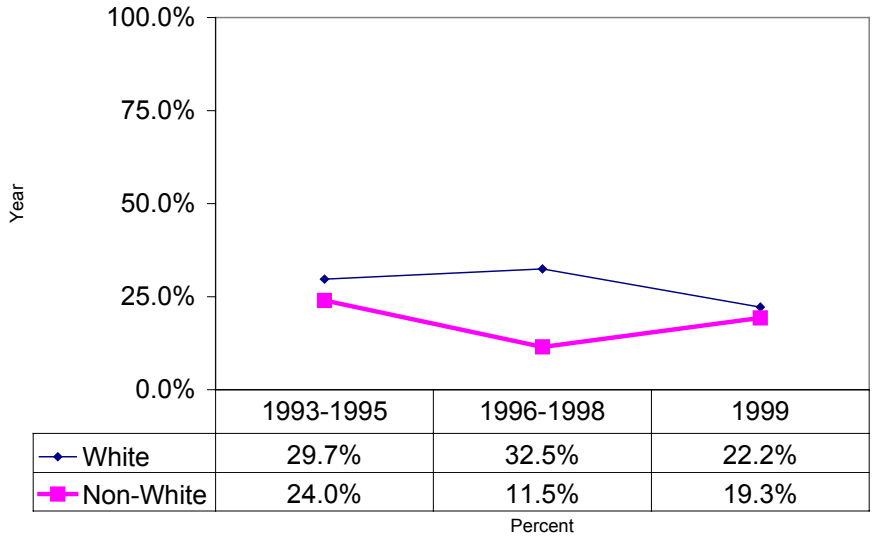
	1993-1995	1996-1998	1999
18-24	12.9%	0.0%	3.5%
25-34	14.4%	19.9%	14.8%
35-44	23.0%	30.8%	15.9%
45-54	33.2%	38.0%	26.8%
55-64	44.9%	55.7%	36.4%
65-74	66.3%	62.3%	33.2%
75+	33.0%	39.4%	30.0%

Fig.37: Trend in High Blood Cholesterol Level



	1993-1995	1996-1998	1999
Some HS or Less	43.4%	42.0%	18.0%
HS Grade or GED	36.0%	37.6%	28.0%
Some College	28.6%	22.9%	25.0%
College Grade	22.9%	28.6%	16.1%

Fig.38: Prevalence of High Blood Cholesterol Level by Race



	1993-1995	1996-1998	1999
White	29.7%	32.5%	22.2%
Non-White	24.0%	11.5%	19.3%

Table 12: Have High Blood Cholesterol Level			
Years	**1993-1995**	**1996-1998**	**1999**
Annual Household Income			
Less than $10,000	37.9%	15.1%	14%
$10,000 - $15,000	26.5%	40.1%	21.3%
$15,000 - $20,000	28.6%	13.4%	23.6%
$20,000 - $25,000	20.4%	45.7%	17.6%
$25,000 - $35,000	26.5%	35%	27.1%
$35,000 - $50,000	27.1%	39.8%	23.3%
$50,000+	29.6%	20.8%	19%